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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

ELKASSABGI, HEBA

ART UNIT PAPER NUMBER

2834

DATE MAILED: 02/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/936,931

Applicant(s)

SCHUERING, INGO

Examiner

Heba Elkassabgi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "salient magnet poles" must be shown or the features canceled from the claims. No new matter should be entered.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the drawings need to indicate the pole pitch and the end points as stated in claims 1 and 6, or the features canceled from the claims. No new matter should be entered.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the drawings need to indicate a single wedge not the double wedges as stated in claim 4, or the features canceled from the claims. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

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art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and 6 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The term salient needs to be defined in the specification and the claims as to how the poles are projecting from the permanent magnets.

Claims 1 and 6 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. The term salient in the specification and the claims needs to be defined as to how or from what point are the poles projecting or jutting from.

The specification does not enable or contain a full clear concise and exact written description of a permanent magnet rotor with salient poles. A salient pole as described in *The American Heritage Dictionary of the English Language* defines the word salient as follows—"projecting or jutting beyond a line or surface: protruding".

Claim 4 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one

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skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The structure of the double wedge needs to be defined in the specification and the claims as to how the wedge is a double wedge.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 1 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear as to whether **each half yoke** extends over half pole pitch or whether **each yoke** extends over half a pole pitch.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

I. Claims 1, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida (EP 0582721) and further in view of Epars (US 4700096).

Uchida discloses in the abstract and illustrates in Figure 2 a rotor having permanent magnets (12) that are flat in magnetization direction and are radially disposed around the rotor shaft (10) with the rotor core members (14) having slot-like spaces for the magnets (12) to be placed between the rotor yokes (14A-14B). However Uchida does not disclose a rotor yokes of being two half yokes.

Epars discloses in Figure 1 a rotor pole (yoke) that is of two mutually adjacent half yokes (17A-B) that extend over half of one pole pitch. In which two half-yokes (17A-17B) of two yokes (17A /17B and 17D/17E) are arranged alongside one another, in which the pole elements are subdivided into a number of pole elements and that the end points (31 and 32) connect to form a pole element that is fixed onto the rotor body and that the end points maintain the magnets and that the pole pieces are disposed between the magnets to create a sole polarity.

It would have been obvious to one of ordinary skill to combine the structure of Uchida with the half yokes structure of Epars in order to create a sole polarity.

II. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida (EP 0582721) and further in view of Epars (US 4700096) and Ackermann (US 5604390).

Uchida discloses in the abstract and illustrates in Figure 2 a rotor having permanent magnets (12) that are flat in magnetization direction and are radially disposed around the rotor shaft (10) with the rotor core members (14) having slot-like spaces for the magnets (12) to be placed between the rotor yokes (14A-14B). However, Uchida does not disclose the rotor yokes of being two half yokes and the slots of the rotor.

Epars discloses in Figure 1 a rotor pole (yoke) that is of two mutually adjacent half yokes (17A-B) that extend over half of one pole pitch. In which two half-yokes (17A-17B) of two yokes (17A /17B and 17D/17E) are arranged alongside one another, in which the pole elements are subdivided into a number of pole elements and that the end points (31 and 32) connect to form a pole element that is fixed onto the rotor body and that the end points maintain the magnets and the pole pieces are disposed between the magnets to create a sole polarity.

Ackerman discloses in the abstract and in Figure 2 a rotor (7) having permanent magnets (19), which are disposed into the slots (18) of the rotor yoke, in which the magnetic field in the air gap has the same polarity as the magnetic field produced by the permanent magnets in the slots.

It would have been obvious to one of ordinary skill to combine the structure of Uchida with the half yokes structure of Epars in order to create a sole polarity and the permanent magnets structure of Ackermann in order that the magnetic field in the air

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gap has the same polarity as the magnetic field that is produced by the permanent magnets in the slots.

III. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida (EP 0582721) and further in view of Epars (US 4700096) and Ackermann (US 5604390) and Burgmeier et al. (US 4296544).

Uchida discloses in the abstract and illustrates in Figure 2 a rotor having permanent magnets (12) that are flat in magnetization direction and are radially disposed around the rotor shaft (10) with the rotor core members (14) having slot-like spaces for the magnets (12) to be placed between the rotor yokes (14A-14B). However, Uchida does not disclose the rotor yokes of being two half yokes and the slots of the rotor.

Epars discloses in Figure 1 a rotor pole (yoke) that is of two mutually adjacent half yokes (17A-B) that extend over half of one pole pitch. In which two half-yokes (17A-17B) of two yokes (17A /17B and 17D/17E) are arranged alongside one another, in which the pole elements are subdivided into a number of pole elements and that the end points (31 and 32) connect to form a pole element that is fixed onto the rotor body and that the end points maintain the magnets and the pole pieces are disposed between the magnets to create a sole polarity.

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Ackerman discloses in the abstract and in Figure 2 a rotor (7) having permanent magnets (19), which are disposed into the slots (18) of the rotor yoke, in which the magnetic field in the air gap has the same polarity as the magnetic field produced by the permanent magnets in the slots.

Burgmeier et al. Discloses in Figure 1 a rotor (73) having two half yokes (poles) (75) is filled with a cushion (30) so that the cushion protects the magnet from fracturing at high speed.

It would have been obvious to one of ordinary skill to combine the structure of Uchida with the half yokes structure of Epars in order to create a sole polarity and the permanent magnets structure of Ackermann in order that the magnetic field in the air gap has the same polarity as the magnetic field that is produced by the permanent magnets in the slots and the cushion of Burgmeier et al. in order to protect the magnet from fracturing at high speed.

IV. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida (EP 0582721) and further in view of Epars (US 4700096) and Ackermann (US 5604390) and Burgmeier et al. (US 4296544) and Weh et al. (US 4663551).

Uchida discloses in the abstract and illustrates in Figure 2 a rotor having permanent magnets (12) that are flat in magnetization direction and are radially disposed around the rotor shaft (10) with the rotor core members (14) having slot-like spaces for the magnets (12) to be placed between the rotor yokes (14A-14B). However, Uchida does not disclose the rotor yokes of being two half yokes and the slots of the rotor.

Epars discloses in Figure 1 a rotor pole (yoke) that is of two mutually adjacent half yokes (17A-B) that extend over half of one pole pitch. In which two half-yokes (17A-17B) of two yokes (17A /17B and 17D/17E) are arranged alongside one another, in which the pole elements are subdivided into a number of pole elements and that the end points (31 and 32) connect to form a pole element that is fixed onto the rotor body and that the end points maintain the magnets and the pole pieces are disposed between the magnets to create a sole polarity.

Ackerman discloses in the abstract and in Figure 2 a rotor (7) having permanent magnets (19), which are disposed into the slots (18) of the rotor yoke, in which the magnetic field in the air gap has the same polarity as the magnetic field produced by the permanent magnets in the slots.

Burgmeier et al. Discloses in Figure 1 a rotor (73) having two half yokes (poles) (75) is filled with a cushion (30) so that the cushion protects the magnet from fracturing at high speed.

Weh et al. illustrates in Figure 7 a rotor (73) having permanent magnets (74) that are secured in the poles (yokes) (75) and that the wedge element (76) is secured to the permanent magnets, so that the direction of the flux of each permanent magnet being directed oppositely to the direction of flux of each adjacent permanent magnet.

It would have been obvious to one of ordinary skill to combine the structure of Uchida with the half yokes structure of Epars in order to create a sole polarity and the permanent magnets structure of Ackermann in order that the magnetic field in the air gap has the same polarity as the magnetic field that is produced by the permanent magnets in the slots and the cushion of Burgmeier et al. in order to protect the magnet from fracturing at high speed and the wedge elements of Weh et al. so that the direction of the flux of each permanent magnet is being directed oppositely to the direction of flux of each adjacent permanent magnet.

VI. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida (EP 0582721) and further in view of Epars (US 4700096) and Amemiya et al. (US 4687114).

Uchida discloses in the abstract and illustrates in Figure 2 a rotor having permanent magnets (12) that are flat in magnetization direction and are radially disposed around the rotor shaft (10) with the rotor core members (14) having slot -like

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spaces for the magnets (12) to be placed between the rotor yokes (14A-14B). However Uchida does not disclose a rotor yokes of being two half yokes.

Epars discloses in Figure 1 a rotor pole (yoke) that is of two mutually adjacent half yokes (17A-B) that extend over half of one pole pitch. In which two half-yokes (17A-17B) of two yokes (17A /17B and 17D/17E) are arranged alongside one another, in which the pole elements are subdivided into a number of pole elements and that the end points (31 and 32) connect to form a pole element that is fixed onto the rotor body and that the end points maintain the magnets and that the pole pieces are disposed between the magnets to create a sole polarity.

Amemiya et al. Illustrates in Figure 2 a permanent magnet rotor that has permanent magnets (13) that are cuboid (having approximate shape of a cube), in order to the axial movement of the magnets are restricted by the end plates.

It would have been obvious to one of ordinary skill to combine the structure of Uchida with the half yokes structure of Epars in order to create a sole polarity and the permanent magnet structure of Amemiya et al. so that the end plates restrict the axial movement of the permanent magnets.

Response to Arguments

Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

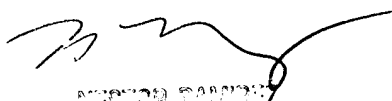
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Heba Elkassabgi whose telephone number is (703) 305-2723. The examiner can normally be reached on M-Th (6:30-3:30), and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Heba Elkassabgi
February 24, 2003


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